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ABSTRACT

This petition requests the Environmental Protection Agency to promulgate regulations in compliance with section 6 of the Toxic Substances Control Act to control asbestos emissions from spray-on materials containing 1 percent or more asbestos that has been applied in public school buildings for insulation, fireproofing, decorative, or other purposes. Specifically, the petition requests the administrator of the agency to establish a program no later than March 1, 1979 that will identify all public schools in which these materials have been used. It also asks the administrator to require the manufacturers and processors of such fiber to take appropriate corrective action to eliminate the emission of asbestos fibers from surfaces that have been sprayed with it. The petition presents evidence that asbestos is a potent carcinogen capable of inducing lung cancer in the human population. (Author/LD)

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Environmental Defense Fund

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PETITION TO THE ENVIRONMENTAL PROTECTION AGENCY TO CONTROL ASBESTOS EMISSIONS FROM SPRAY-ON MATERIALS WHICH HAVE BEEN APPLIED IN PUBLIC SCHOOL BUILDINGS FOR INSULATION, FIREPROOFING, DECORATIVE OR OTHER PURPOSES

December 21, 1978

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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TABLE OF CONTENTS

I. SUMMARY 1

II. JURISDICTION 2

III. DESCRIPTION OF PETITIONER 5

IV. SCIENTIFIC BASIS FOR REGULATING ASBESTOS EMISSIONS FROM SPRAY-ON MATERIALS 6

A. Asbestos Has Been Used Extensively to Decorate, Insulate and Fireproof Schools 6

B. Levels of Asbestos in the Air of Schools Containing Asbestos Sprayed Material Far Exceeds Typical Outdoor Air Asbestos Levels. . . 10

C. Asbestos Is a Potent Human Carcinogen, Causing Cancer After Brief Exposures and Low Level Exposures 18

D. Airborne Asbestos Levels in Schools Are a Significant Health Hazard 26

E. Schools Throughout America Contain Sprayed Asbestos Material 31

F. To Eliminate the Hazard, the Asbestos Material Can Be Sealed or Removed 35

V. LEGAL BASIS FOR RULEMAKING UNDER §6 OF THE TOXIC SUBSTANCES CONTROL ACT 38

A. The Unreasonable Risk to Health Posed by Asbestos Emissions from Spray-On Material Cannot Be Prevented to a Sufficient Extent by Action Taken Under a Federal Law Not Administered by the Administrator 38

B. It May Not Be in the Public Interest To Attempt To Use Other Laws Administered by the Administrator To Control Asbestos Emissions from Spray-On Materials in Public Schools 41

C. Section 6 Gives the Administrator the Authority To Regulate Asbestos and Mixtures Containing Asbestos Used for Spray-On Materials 45

D. EPA Has the Authority Under §6(a)(3), §6(a)(5) and §6(a)(7) To Control the Emission of Asbestos from Spray Materials in Public School Buildings 53

E. Section 6(d)(2) of the Toxic Substances Control Act Gives the Administrator the Authority To Make Rules Effective upon Publication. 60

VI. CONCLUSION 62

TABLES:

Table 1: Airborne Asbestos in Buildings 11

Table 2: Distribution of 24 hour Chrysotile asbestos concentrations in the ambient air of U.S. cities 13

Table 3: Comparison of Asbestos Levels in Schools with Air-Borne Levels in Other Environments Sampled by Mount Sinai. 27

Table 4: Schools with Asbestos 32

State Involvement in Programs To Control Asbestos-Sprayed Material in Schools 34

I. SUMMARY

This petition requests the Environmental Protection Agency to promulgate regulations pursuant to §6 of the Toxic Substances Control Act, 15 U.S.C. §2605, to control asbestos emissions from spray-on materials containing one percent or more asbestos which have been applied in public school buildings for insulation, fireproofing, decorative or other purposes. Specifically, the petition requests the Administrator, pursuant to §6(a)(3), §6(a)(5), and §6(a)(7) of the Toxic Substances Control Act, (1) to establish a program designed to identify all public schools in which these materials have been used (to be funded by affected school districts and the manufacturers of asbestos fiber which has been incorporated into these spray-on materials); and (2) to require the manufacturers and processors of such fiber to take appropriate corrective action to eliminate the emission of asbestos fibers from surfaces which have been sprayed with such materials.

The petition presents evidence which demonstrates that there is a reasonable basis to conclude that the continued exposure to asbestos fibers resulting from the use in public school buildings of such spray-on materials presents or will present an unreasonable risk of injury to health. The petition reviews the extensive evidence which shows that asbestos is a potent human carcinogen and is capable of inducing mesothelioma and lung cancer in the human population even at relatively low levels. The petition also cites evidence which suggests that school children are especially at risk because there is a

generally longer period for the disease to develop than in persons exposed in middle age or later. Finally, the petition points out that teachers or children who smoke are particularly at risk since studies have found that smoking combined with exposure to asbestos substantially increases the possibility of developing lung cancer. Petitioner argues that all of these factors demonstrate that asbestos emissions from these materials present an unreasonable risk to the health of persons using public school buildings.

The petition requests EPA to initiate rulemaking activities pursuant to §6 of the Toxic Substances Control Act by no later than March 1, 1979. Petitioner has also requested that the requirements for an investigation of those public schools which may contain asbestos spray-on materials be made immediately effective upon publication of the proposed rule. In addition, petitioner has requested that corrective action be required immediately in those public schools which have already been identified pursuant to EPA or other surveys and which contain asbestos-laden spray materials which have already visibly deteriorated.

II. JURISDICTION

This petition is filed pursuant to §§6, 11, and 21 of the Toxic Substances Control Act of 1976, 15 U.S.C. §2601 et seq.

Section 21 of the Act, 15 U.S.C. §2620, gives any person the right to petition the Administrator to initiate a proceeding for the issuance of a rule under §§4, 6, or 8, or an

order under §§5(e) or 6(b)(2). Section 21(b)(3) requires the Administrator to either grant or deny a petition within 90 days after it has been filed. If the petition is granted, the Administrator is required to promptly commence the appropriate rulemaking proceeding pursuant to §§5, 6, or 8.

Section 6 of the Toxic Substances Control Act gives the Administrator the authority to require by rule a variety of requirements governing, inter alia, the use or disposal of a chemical substance or mixture which he has determined presents or will present "an unreasonable risk of injury to health or the environment. . . ." 15 U.S.C. §2605(a). He is authorized by rule to apply one or more of these requirements to the extent necessary to protect adequately against such risk using the least burdensome requirements. The authority to take the action requested by petitioner is contained in §6(a)(3), §6(a)(5), and §6(a)(7).

Section 6(a)(3) provides that the Administrator may impose "a requirement that such substance or mixture or any article containing such substance or mixture be marked with or accompanied by clear and adequate warnings and instructions with respect to its use, distribution in commerce, or disposal or with respect to any combination of such activities. The form and content of such warnings and instructions shall be prescribed by the Administrator." 15 U.S.C. §2605(a)(3).

Section 6(a)(5) gives the Administrator authority to impose "a requirement prohibiting or otherwise regulating any manner or method of commercial use of such substance or mixture." 15 U.S.C. §2605(a)(5).

Finally, the Administrator is authorized by §6(a)(7) to impose

> a requirement directing manufacturers or processors of such substance or mixture (A) to give notice of such unreasonable risk of injury to distributors in commerce of such substance or mixture and, to the extent reasonably ascertainable, to other persons in possession of such substance or mixture or exposed to such substance or mixture, (B) to give public notice of such risk of injury, and (C) to replace or repurchase such substance or mixture as elected by the person to which the requirement is directed.

15 U.S.C. §2605(a)(7).

Section 11(c) of the Act, 15 U.S.C. §2610(c), gives the Administrator the authority by subpoena to "require the attendance and testimony of witnesses and the production of reports, papers, documents, answers to questions, and other information that the Administrator deems necessary." This section also gives the Administrator the authority upon refusal of any person to obey such a subpoena to initiate an action in the United States District Court to require compliance with the subpoena.

III. DESCRIPTION OF THE PETITIONER

Petitioner, Environmental Defense Fund, Inc. (EDF), is a non-profit, tax-exempt corporation organized under the laws of the State of New York, devoted to the preservation and improvement of the environment. One of the organization's primary goals is the protection of the public against carcinogens and other toxic substances. Through its Toxic Chemicals Program, it seeks to eliminate carcinogens from the air, water, food, and consumer products. The organization has over 45,000 members nationwide, including lawyers, scientists, and other persons committed to the protection of the public health and environment. A substantial number of EDF's members or their children are exposed to asbestos emissions from spray-on materials used in public school buildings. As a result, they face an increased risk of contracting lung cancer or mesothelioma. As such, they are interested persons within the meaning of §21 of the Toxic Substances Control Act. The organization has offices and is doing business at 1525 18th Street, NW, Washington DC; 475 Park Avenue South, New York NY; 1657 Pennsylvania Street, Denver CO; and 2606 Dwight Way (Johnson Hall), Berkeley CA.

IV. SCIENTIFIC BASIS FOR REGULATING ASBESTOS EMISSIONS FROM SPRAY-ON MATERIALS

A. Asbestos Has Been Used Extensively to Decorate, Insulate and Fireproof Schools

Asbestos is a generic term for a number of naturally occurring hydrated silicates that, when crushed or processed, separate into flexible fibers made up of fibrils. A serpentine mineral, chrysotile (white asbestos) and the amphiboles, actinolite, amosite (brown asbestos), anthophyllite, crocidolite (blue asbestos), and tremolite are currently classified as "asbestos".[1/]

In general, the six asbestiform minerals are commercially useful because they form fibers which are incombustible, and possess high tensile strength, good thermal, acoustical, and electrical insulating properties and moderate to good chemical resistance. These properties made asbestos an attractive material for extensive use in buildings to retard structural collapse during fire, and to provide condensation control, acoustic and thermal insulation, and decorative ceiling coverings. For these uses asbestos was combined with a variety of other ingredients and then sprayed on to the appropriate surface, usually ceilings or internal steelwork and sometimes walls. Spraying offered the advantage of low cost because it allows rapid coverage of large areas, without the need for extensive surface preparation or scaffolding.

A variety of asbestos-containing materials have been used. A study of the use of asbestos materials in New Jersey Schools revealed three basic types of materials.[2/] One was a friable (easily

crumbled), loosely bonded, mixture of asbestos, mineral wool, clay binders, adhesives, synthetic resins and other proprietary agents. The material was applied by blowing it through a hose, where it passed through a water spray which activated the binders. The material was applied to a one-half inch thickness and then usually covered with a paint sealer. The authors report that material of this type erodes, is easily damaged, and breaks loose from the underlying surface because the binders do not work well. A second type of material consisted of asbestos mixed with other low density minerals such as vermiculite. This material was usually applied in a wet slurry, compacted, smoothed and then painted over. The investigators did not see spontaneous disintegration of this material but in areas accessible to students, the material was often damaged. The third type of material consisted of asbestos mixed with cement or plaster. This was found to have considerable stability and was judged unlikely to allow the spontaneous release of asbestos through erosion. Damage to this type of material from physical contact was seen. All three types of material are classified as sprayed asbestos materials.

The amount and types of asbestos contained in sprayed asbestos insulation and decorative material seems to vary. EPA has reported that material used for decorative purposes contains from 29 to 64 percent asbestos by weight.[3/] EPA has indicated that material used for fireproofing and insulation contains from 10 to 80 percent asbestos.[4/] Other studies have reported finding material in buildings containing anywhere from 5 to 98 percent asbestos.[5/]

Chrysotile asbestos appears to be the major asbestiform mineral used. Sometimes amphibole materials are also used, most often in combination with chrysotile.

The use of sprayed material containing asbestos first began in 1932 in Great Britain. The first U.S. use, in 1935, was for decorative and acoustical purposes in a variety of buildings including nightclubs, restaurants and hotels. The use expanded rapidly after World War II. An important additional use, the fireproofing of structural steel and other components of high rise buildings, began in 1958. Noise control appears to have been one of the major reasons for use of asbestos-containing materials in school auditoriums, libraries, hallways and classrooms. Asbestos-containing materials were extremely widely used in this country. In 1950 more than half of all multistory buildings constructed in the U.S. used some form of sprayed mineral fireproofing. Forty thousand tons of sprayed material was used for fireproofing alone in 1968.[5] Johns-Manville, the major producer of asbestos, has indicated that sprayed asbestos insulation was used in the majority of all public buildings constructed between 1940 and 1973.[6]

Reflecting on the widespread use of asbestos-containing material Robert Sawyer, one of the first scientists to study this issue, concluded,

> "It is indeed possible, therefore, that sprayed asbestos material within buildings may become the most significant source of environmental asbestos contamination in the future."[5]

The major uses of sprayed asbestos material stopped in 1973 when EPA banned spray application of insulating or fireproofing

material, but not decorative material, containing more than 1 percent asbestos by weight.[4/]

On March 2, 1977 EPA proposed to extend the ban to all uses of sprayed material containing more than 1 percent asbestos.[3/] The extension was promulgated on June 19, 1978 (43 FR 26372).

B. Levels of Asbestos in the Air of Schools Containing Asbestos Sprayed Material Far Exceeds Typical Outdoor Air Asbestos Levels

Measurements of air concentrations of asbestos in buildings sprayed with asbestos material for fireproofing, decorative or acoustical purposes indicate indoor levels of asbestos far above those typical for ambient urban and rural air.[7] The levels found, in some cases 100 times the typical outdoor level, can be expected to lead to asbestos-related diseases.

In general, the presence of asbestos is greatest when there is visible damage to the sprayed material. Under these conditions air levels are the lowest under quiet conditions, when the area treated with asbestos is not being used, but during which asbestos may be steadily falling out from the asbestos-containing material. The highest levels have been measured following damage to the asbestos-containing material or during activities that directly stir up already fallen particles, such as cleaning or student movement.

Table 1 summarizes the results of available studies on asbestos levels in buildings.

For comparison, Table 2 gives the results of two studies measuring chrysotile asbestos levels in the air of 48 U.S. cities during 1969 and 1970. Each value in Table 2 is an average of a number of 24-hour samples and therefore averages peak concentrations.*

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* All the measurements in Table 2 and some in Table 1 are given in nanograms of chrysotile asbestos per cubic meter. A nanogram is one-billionth of a gram. Samples are collected by drawing air through a filter. The asbestos collects on the filter. The sample is mechanically dispersed and prepared for electron microscope examination. All chrysotile asbestos fibers are sized and their mass determined. Using the figures for the air volume sampled and a dilution factor appropriate to the dispersion and preparation technique, the chrysotile mass per cubic meter of air sampled is determined.

Table 1

Airborne Asbestos in Buildings

Sampling Conditions or Nature of Asbestos-Containing Material	Mean Asbestos Levels f/cm^3	Mean Asbestos Levels ng/m^3	Range of Asbestos Levels f/cm^3	Range of Asbestos Levels ng/m^3
1. Schools, N.J.[2]				
A. Normal use conditions				
a. fibrous spray				
i. intact				53[a]
ii. damaged				80-1,950
b. cementious				
i. intact				26[a]
ii. damaged				43-280
B. Simulated contact (brushing with hand)			0.0-3.8	
2. Schools, N.Y. [2]				9-135
3. School, Mass.[2]				38-260
4. School, Paris, France[2]				1-1000
5. University dormitory, UCLA[5] Exposed friable surfaces, 98% amosite General student activities	0.1		0-0.8	
6. Art and Architecture Building, Yale University[5]. Exposed friable ceilings, 20% chrysotile				
Fallout				
Quiet conditions	0.02			
Contact				
Cleaning, moving books in stack area	15.5			
Relamping light fixtures	1.4			
Removing ceiling section	17.7			
Installing track light	7.7			
Installing hanging lights	1.1			
Installing partition	3.1			
Reentrainment				
Custodians sweeping, dry	1.6			
Dusting, dry	4.0			
Proximal to cleaning (bystander exposure)	0.3			
General Activity	0.2			

Table 1

Airborne Asbestos in Buildings (Con't.)

Sampling Conditions or Nature of Asbestos-Containing Material	Mean Asbestos Levels f/cm^3	Mean Asbestos Levels ng/m^3	Range of Asbestos Levels f/cm^3	Range of Asbestos Levels ng/m^3
7. Office buildings, Eastern Connecticut[5]				
Exposed friable ceilings, 5 to 30% chrysotile				
Custodial activities, heavy dusting	2.8			
8. Office building, Connecticut[5]				
Exposed sprayed ceiling, 18% chrysotile.				
Routine activity		79		40 to 110
Under asbestos ceiling		99		
Remote from asbestos ceiling		40		
9. Urban Grammar School, New Haven.[5]				
Exposed ceiling, 15% chrysotile asbestos				
Custodial activity; sweeping, vacumming		643		186 to 1100
10. Apartment Building: N.J. heavy housekeeping. Tremolite and chrysotile[5]		296		
11. Buildings, 5 U.S. cities[2]				
a. cementious spray				0.9-180
b. fibrous spray				0-830
c. acoustical & decorative spray				0-160
d. no asbestos				0-42

a. Only a single sample was taken

b. 15% of the samples were over 50 ng/m^3; 8% were over 200 ng/m^3

Table 2

Distribution of 24 hour chrysotile asbestos concentrations in the ambient air of U.S. cities

Electron Microscopic Analysis

Asbestos Concentration (ng/m^3) Less Than	Mount Sinai School of Medicine		Battelle Memorial Institute	
	Number of Samples	Percentage of Samples	Number of Samples	Percentage of Samples
1.0	61	32.6	27	21.3
2.0	119	63.6	60	47.2
5.0	164	87.7	102	80.1
10.0	176	94.2	124	97.6
20.0	184	98.5	125	98.5
50.0	185	99.0	127	100.0
100.0	187	100.0	127	100.0

From: Nicholson, W.J. Measurement of asbestos in ambient air, Final Report, Contract CPA 70-92, National Air Pollution Control Administration (1971). And: Office of Technical Analysis, U.S. EPA. A preliminary report on asbestos in the Duluth, Minnesota, area. January, 1974, 33.

As Table 2 indicates, over 98 percent of the samples indicated ambient chrysotile concentrations in the 48 cities to be below 20 ng/m^3. About 80 percent of the samples were below 5 ng/m^3 and about half were below 2 ng/m^3. Only three out of 187 samples were above 20 ng/m^3 and two of these were from cities with a known asbestos source, either a shipyard or brake manufacturing facility. In all three cities, samples taken at other times were below 20 ng/m^3. In most cases, therefore, the maximum concentration of asbestos in urban air was 20 ng/m^3.

Table 1 clearly indicates that asbestos levels in buildings with sprayed asbestos materials can far exceed typical urban levels. For example, levels in one New Jersey school reached 1950 ng/m^3, or about 100 times the maximum typical outdoor concentrations.

The asbestos levels reported for New Jersey schools in entry (1)(A) of Table 1 were taken while the schools were in session, under normal conditions of use. These levels, therefore, illustrate the asbestos levels to which school children and professional personnel are exposed to daily when asbestos-containing material begins to emit asbestos into the air. The schools monitored had visible damage to the asbestos-containing materials in certain hallway or classroom ceilings. The comparison between asbestos levels in areas with intact material and those areas with damaged material demonstrates that the concentration of asbestos increases significantly when the material is damaged. In the New Jersey schools readings in areas with intact material were 26 and 53 ng/m^3 while levels in areas with damaged material ranged from 43 - 1,950 ng/m^3.

The New Jersey schools were also measured for asbestos levels after conditions of simulated abuse of the asbestos material, specifically brushing of the material by hand. Asbestos fibers were measured using the optical microscope and are expressed as fibers per cubic centimeter.* The authors of the study concluded:

> The asbestos air concentrations, during short periods of time, were comparable to those found in occupational settings. Following any such disruption of asbestos during school sessions, normal pupil movement through the hallways could continue to disperse asbestos into the air and it would be expected that the air concentrations would exceed those listed in [Table 1 entry A], where little or no asbestos was visible during the situations sampled.

Table 1 also reports asbestos concentrations in schools in New York, Massachusetts and Paris, France. In all cases asbestos levels significantly exceeded ambient outdoor levels. The levels reported constitute a serious health hazard to all those breathing the contaminated air.

Perhaps the most extensive investigation of asbestos levels in a school building was carried out by Dr. Robert Sawyer on the Art and Architecture Building at Yale University. Dr. Sawyer also used the optical method to measure asbestos fiber concentrations.

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* The optical method is the basis of the Occupational Safety and Health Administration (OSHA) standard for permissible worker exposure to asbestos. The present standard is 2 f/cm^3 averaged over 8 hours and 10 f/cm^3 at any one time. The OSHA standard does not adequately protect worker health and the optical method underestimates the amount of asbestos in the air.

Normal moving of books in the library area of the building resulted in a 15.54f/cm^3 asbestos level. Removal of a 1x2-foot ceiling section resulted in a 17.7f/cm^3 asbestos level. Both of these levels exceed the OSHA 10f/cm^3 standard. The workers removing the ceiling spent only 25% of their actual work time in contact with the ceiling material. Therefore, their exposure levels during contact with the ceiling were higher than the averaged figures recorded above. Asbestos concentrations during other routine activities often exceeded the 2f/cm^3

The following conclusions may be drawn about the magnitude of asbestos air concentrations in buildings with asbestos-containing material:

1. Many asbestos-containing materials have low impact resistance and are easily damaged, resulting in the release of asbestos. Such contact is likely to be routine and unavoidable in schools. It may occur accidently during normal maintenance activities, such as changing of light fixtures, or typical student behavior such as jostling or play activities. (One report indicated extensive damage in a room used for band practice in which the flagpoles used were repeatedly contacting the ceiling). Deliberate vandalism is also common.

2. Physical deterioration of the asbestos material results in airborne asbestos concentrations significantly above the ambient outside level. Levels measured in schools ranged up to 1,950 ng/m^3 and 17.7 f/cm^3.

3. Because damage to asbestos-containing materials is likely to occur in schools, air concentrations significantly above ambient levels can be expected to occur and reoccur in schools with asbestos-containing material.

4. In the absence of physical deterioration, levels can exceed

the maximum asbestos concentration found in most urban air. Moreover, the possibility of future damage to the material and resulting elevated asbestos levels cannot be excluded.

5. Air levels are generally greatest immediately after contact with the asbestos-containing material and during certain routine and custodial work, such as sweeping, that recirculates already fallen asbestos. These levels can exceed the existing inadequate OSHA standard for asbestos exposure and are comparable to levels found in the workplace.

6. Levels of airborne asbestos concentrations are episodic. Contact with the material, level of general activity in an area, or specific custodial tasks greatly affect levels of asbestos. Once asbestos fibers have been released into the air from damaged asbestos-containing material, the fibers repeatedly cause contamination, as disturbance of settled fibers causes resuspension into the atmosphere. Therefore a fiber can participate in repeated cycles of resuspension and settling.

7. Fiber fallout from already damaged material is likely to continue in the absence of repeated contact. Fallout rates are affected by structure vibration, humidity, and air turbulence, and the condition of the adhesive compound.

8. Significant airborne levels can occur without visible asbestos on floors.

C. Asbestos Is a Potent Human Carcinogen, Causing Cancer After Brief Exposures and Low Level Exposures

Asbestos is a potent animal and human cancer-causing agent. It has been shown to cause cancer in a variety of animal species even after only extremely short exposure periods. For example, Wagner et al.[8] exposed groups of CD Wistar rats by inhalation to Rhodesian and Canadian chrysotile at a concentration of 12 mg/m^3 respirable dust. Forty-one percent of the animals exposed to the asbestos had cancer. Both mesothelioma and lung tumors were observed. As little as 7 hours of exposure caused neoplasia. In all, about 20 other experiments confirm the link between chrysotile and cancer in animals.[9]

The evidence linking asbestos exposure to cancer in humans is equally strong. In 1935, Lynch and Smith[10] first observed that lung cancer was associated with asbestos exposure. It was the early 1950's when epidemiologists conclusively demonstrated the association between certain cancers and exposure to asbestos. Since that time the association has been repeatedly confirmed. For example, Selikoff,[11] who pioneered in the study of asbestos-related disease, observed that approximately 40 percent of the deaths among asbestos insulation workers in recent years has been due to cancer, compared to less than 20 percent in the general population. In one study of 632 asbestos insulation workers, nearly 4 times as many deaths occurred from cancer as expected (7 times more lung cancer; 3 times more stomach and esophageal cancer; and 3 times more colon cancer than expected). In addition, nearly 8 percent of the deaths among the workers were from malignant mesothelioma of the pleura (lining of the chest) or peritoneum (lining of the abdomen). Mesothelioma

is an exceedingly rare, always fatal cancer with nearly zero expectation in the general population. Asbestos workers who smoked cigarettes, had approximately 92 times the risk of dying of lung cancer than did workers of equal age who neither smoked nor worked with asbestos. Asbestos workers who smoked had 8 times the lung cancer risk of other smokers. Selikoff observed similar relationships among other insulation workers and among asbestos factory workers. (The synergistic relationship between smoking and asbestos exposure is particularly relevant to assessing the health hazards of asbestos-containing sprayed material. Obviously, many school children and professionals smoke or will smoke).

McDonald et al.[12/] reported an increased lung cancer rate for workers employed in chrysotile mines and mills. Those workers most heavily exposed had about a 5-fold increased risk of lung cancer compared to those least exposed. Kogan et al.[13/] reported that male workers in asbestos mills over the age of 50 had a 6-fold increase in lung cancer compared to the general population. Women exhibited a 40-fold increase. An excess in respiratory cancer was described by Wagoner et al.[14/] for workers in a major manufacturing complex using predominantly chrysotile asbestos. Similarly, Enterline and Henderson[15/] found that workers exposed only to chrysotile had a respiratory cancer risk 2.4 times that expected.

Similar increases in cancer risks have been found for workers exposed to other types of asbestos or to chrysotile in combination with other types of asbestos. Selikoff et al.[16/] found a 7-fold excess of lung cancer in insulation workers exposed to chrysotile and amosite asbestos. Studies by Newhouse and Berry[17/] have indicated an increased mesothelioma rate among workers exposed to mixed

asbestos fibers. Additional evidence confirming the association between mesothelioma and asbestos exposure comes from data from Australia, Germany, Italy, Africa, Netherlands and the United Kingdom.[9]

In addition to those workers who work directly with asbestos or asbestos products, Menck and Henderson[18] have suggested a link between increased lung cancer rates and exposure to asbestos among ship and shipyard workers (including stevedores), clothing ironers, plasterers, drywall workers, electricians, and plumbers. In view of the numerous studies on the association between exposure to asbestos and cancer,[9] it is now widely accepted that inhaled asbestos is a potent carcinogen.

Indeed, the U.S. Government has estimated[19] that between 58,000 and 75,000 cancer deaths a year will be attributable to asbestos. This is 13-18% of all cancer deaths expected in the U.S. in the forseeable future, a truly staggering figure.

Epidemiological studies have also shown increased cancer rates among individuals exposed to low levels of asbestos or exposed to asbestos for only brief periods of time. The Wagoner[14] and Newhouse and Berry[17] studies demonstrated increased cancer levels for workers who had worked with asbestos for less than two years. Studies summarized by the International Association for Research on Cancer have shown an association between asbestos and mesothelioma after exposure as brief as one day.[9]

In one of the first studies which demonstrated that brief occupational exposure to asbestos could lead to cancer, Newhouse and Thompson[20] investigated 83 cases of mesothelioma that had occurred over a 50-year period, matching these cases with controls that did not have mesothelioma. A clear association with occupational, domestic and neighborhood asbestos exposure was demonstrated for the mesothelioma cases, and occupational exposures for men were recorded for as little as 5 weeks of exposure, and for women for as little as 6 months of exposure.

In a recent study of 933 men who worked at an amosite asbestos factory, Seidman, Lilis, and Selikoff[21] observed that workers who were employed for less than one month had a slight excess rate of lung cancer, and for those who worked one month, the lung cancer rate was approximately 2.5 times the expected rate. Workers who were employed for less than 3 months experienced nearly a 4-fold increase over that expected for lung cancer after 30 years from onset of work.[11] In a similar study of 246 cases of mesothelioma, Greenberg and Lloyd-Davies[22] found that 12 percent of the cases with occupational exposure had been exposed for under 5 years, and in one case for only 3 weeks.

Epidemiological studies have also demonstrated a correlation between cancer and asbestos exposure for people living in the vicinity of facilities handling asbestos and persons living in the same houses as asbestos workers, people who were likely exposed to levels of asbestos much lower than workers.

Of 87 cases of mesothelioma identified by Wagoner[14] by 1959, the majority of the patients had not actually worked with asbestos.

Indeed, only 12 had industrial exposure. The rest had lived in the vicinity of asbestos mines and mills, some having left the asbestos fields as young children, or in their teens. In some of the cases, the exposure was brief. For example, the youngest case diagnosed, age 21, was apparently only exposed to asbestos for a very brief time as an infant when he was taken to a "cobbing" site by his mother from the age of 6 weeks until he was weaned. In another case, a woman was born in a town on the asbestos fields, left at the age of 5, and was in good health until 55, when she developed pleural mesothelioma.

In the study cited earlier, Newhouse and Thompson[20/] observed that 11 of their 83 mesothelioma cases lived within one-half mile of an asbestos factory, compared to 5 individuals in the control group. Three of the mesothelioma cases, all female, lived within one-half mile of the factory for only 7 years before the age of 14. Of the other 8 cases, one male lived the first 16 years of his life within one-half mile of the factory while 6 of the remaining 7 were females who were between the ages of 6 and 13 years when the factory opened and remained in the area for between 3 and 7 years.

Similarly, Lieben and Pistawka[23/] found that out of 42 cases of mesothelioma investigated, 8 lived or worked in the vicinity of an asbestos plant, while Greenberg and Lloyd-Davies[22/] identified 13 cases (5%) out of 246 cases studied that were associated with exposure by neighborhood or domestic sources of asbestos.

Martischnig et al.[24] found that 58 out of 201 men with lung cancer admitted to a thoracic surgical center gave a history of exposure to asbestos, compared with only 29 of the matched controls, although none were ostensibly "asbestos workers" and none had evidence of asbestosis.

Newhouse and Thompson[20] also identified mesothelioma among persons who lived in the same household as asbestos workers. Twelve percent of the mesothelioma cases (compared to one percent of the controls), involved relatives who lived in the same household with an asbestos worker. In this group, the most usual history of exposure was that of a wife who washed her husband's dungarees or work clothes. The two men in this group, when boys of 8 or 9 years of age, had sisters who were working at an asbestos factory.

Similarly, of the 42 cases of mesothelioma studied by Lieben and Pistawka,[23] 3 were family members of asbestos workers. Further evidence supporting this association was provided by Lillington, Jamplis, and Differding,[25] who reported on a case of a husband and wife who both died of mesothelioma in 1971 and 1973, respectively. The husband worked with asbestos from 1941 to 1949, while the wife's only known exposure was from washing her husband's dusty clothing.

In a recent study, Anderson et al.[26] examined 326 individuals with no occupational exposure to asbestos, but who lived in a family with a member who worked at an amosite asbestos-products factory for

varying times between 1941 and 1954. These 326 individuals were clinically examined for prevalence of early asbestos-related health effects, such as the radiographic changes of parenchymal fibrosis, pleural fibrosis, and calcification. The length of employment of the family members in this group who worked in the amosite plant was from one day to 13 years, with 50% of the group coming from households in which the workers' length of employment (and thus active contamination of the home) was less than one year.

Of the individuals examined, all of whom considered themselves to be healthy, 35 percent had chest x-ray abnormalities with a predominance of pleural changes, fibrosis, and/or calcification. Four of the individuals had already developed pleural mesotheliomas. Although it was not possible to predict how many of these individuals with abnormal chest x-rays would eventually develop mesothelioma, the recent study by Edge[27/] suggests the number may be high. Edge observed that of 235 former shipyard workers who had pleural fibrosis and/or calcification on their chest x-rays in 1970, 24% of the 70 deaths that occurred between 1970 and 1973 were from mesothelioma.

The evidence summarized here clearly demonstrates that asbestos in general and chrysotile asbestos in particular is a potent human carcinogen.* Moreover, a "safe" or no-effect level for human exposure to asbestos cannot be determined. This scientific fact must govern any regulation whose goal is to protect the public health from cancer related to asbestos exposure. Only no exposure can guarantee no cancer. The no threshold concept for asbestos and other carcinogens has been accepted by scientists, government regulatory agencies and the courts. For example, the Occupational Safety and Health Admin-

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* In a September 25 letter to Larry Dorsey, Office of Toxic Substances, EPA, Richard Carter, Manager of Government Affairs of the

Footnote continued:

Health, Safety, and Environment Department of Johns-Manville Sales Corporation, cites a recent study, presented to the NY Academy of Sciences, to support Johns-Manville's contention that the levels of asbestos measured in schools do not pose a health risk. Our analysis of the study, "Mortality Experience of Residents In the Neighborhood of An Asbestos Plant", by E.C. Hammond et al. indicates that the results do not support John-Manville's claim. Hammond et al. studied the mortality experience of a group of men who lived within one-half mile of an amosite asbestos factory in Riverside, New Jersey. The authors conclude that no increased mortality occurred among the Riverside group when compared to a control group of men who lived in Totowa, N.J., a few miles from the plant. The relevance of this finding to assessing the risks caused by environmental exposure to asbestos is marred by several methodological failings of the study. Indeed, one of the study's author's, William Nicholson, has indicated to EDF that the study is not relevant to assessing the risks posed by asbestos-containing materials in schools.

The study's major failing is that not enough time has passed between the men's exposure to the air around the plant and the time of the study, to allow for the expiration of the expected latency period for development of mesothelioma. The earliest documented residence of a member of Riverside study group near the plant was 1942. The end of the study's follow up period was 1976, 34 years later. The latency period for mesothelioma, even after high occupational exposures is 35-40 years. For mesothelioma associated with neighborhood exposure the latency period is even longer. Newhouse and Thompson[20] reported a latency period of about 49 years for development of mesothelioma after neighborhood exposure. It is simply impossible to conclude that the study cohort did not suffer any asbestos related cancer mortality until at least this period of time has passed since initial exposure. This is especially critical in the context of this petition where the population at risk is children, who can be expected to live upwards of 60 years after exposure to asbestos in schools.

A second problem in interpreting the Hammond study arises from insufficient information about the amount of time a member of the study group lived near the plant. The documentation used in the study was listing in the Paterson city directory twice in the period from 1942 to 1944 and once in the period from 1945-1954. Therefore members of the study group may have been in residence near the plant for as little as three years. Furtner, there is no information on the percentage of those years actually spent at home.

In summary, the Hammond et al. study does not detract in any way from the overwhelming evidence supporting the association between asbestos induced cancer and the levels of asbestos measured in schools with asbestos-containing material.

istration proposed cancer policy concludes:

> Thus, once a qualitative presumption of carcinogenicity has been established for a substance, any exposure to that substance must be considered to be attended by risk when considering any given population. No exception to this point has yet been demonstrated.....Hence, today it does not seem feasible to predict a "finite" safe level for a carcinogen to an individual human, let alone for a population, composed as we are of aggregates of genetically heterogenous individuals with widely varying predispositions and susceptibilities.28/ (Emphasis added)

Specifically concerning asbestos, the National Institute of Occupational Safety and Health concludes:

> Evaluation of all human data provides no evidence for a threshold or for a "safe" level of asbestos exposure. Based on the available data, no assessment can presently be made concerning the existence of a level of asbestos exposure below which an increased risk of cancer could not be detected.29/

> Only a ban on the use of asbestos can ensure complete protection against this mineral's carcinogenic effect.30/

The IARC monograph on asbestos concludes:

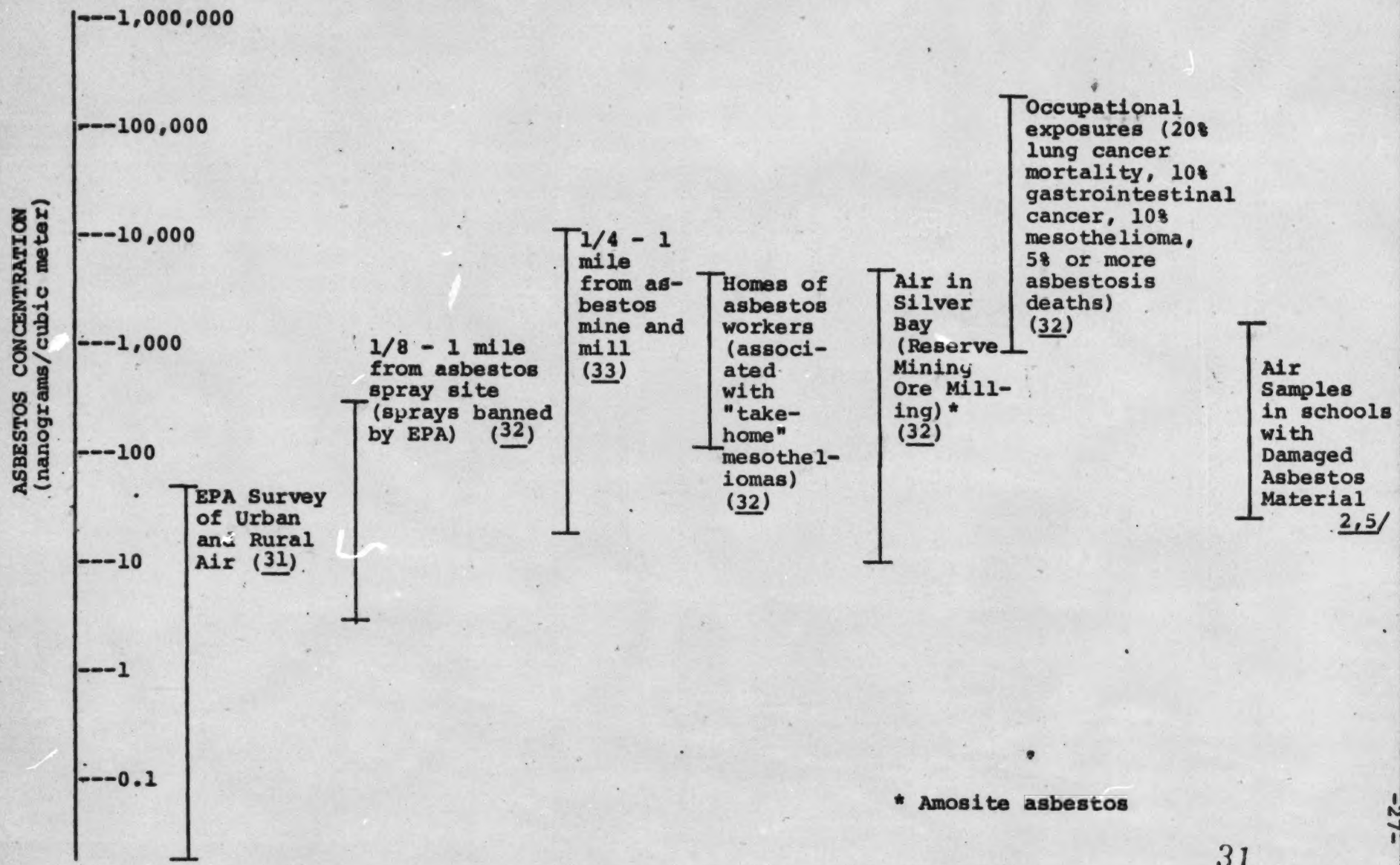
> At present it is not possible to assess whether there is a level of exposure in humans below which an increased risk of cancer could not occur.9/

D. Airborne Asbestos Levels in Schools Are a Significant Health Hazard

On the basis of the above discussion of the absence of a safe level of exposure to asbestos and the scientific evidence demonstrating a clear association between asbestos exposure and various forms of cancer, EDF maintains that any exposure of school children, teachers, custodians or others to asbestos from sprayed material may result in increased cancer rates.

For purposes of illustrating the hazards posed by damaged asbestos-containing material, the levels of airborne chrysotile asbestos concentrations detected in schools is compared in Table 3 to chrysotile concentrations measured in other environments, many of which have been associated with increased cancer rates and asbestosis. Table 3 only includes data from the Environmental Sciences Laboratory at Mt. Sinai School of Medicine. This was done

Table 3 - COMPARISON OF ASBESTOS LEVELS IN SCHOOLS WITH AIR-BORNE LEVELS IN OTHER ENVIRONMENTS SAMPLED BY MOUNT SINAI (chrysotile asbestos unless otherwise noted)



* Amosite asbestos

because comparison is most meaningful among measurements analyzed by the same technique. Table 3 clearly indicates that the levels measured in schools are similar to levels observed in the homes of asbestos workers, near asbestos mines and mills, and on the low end of occupational exposures. All these exposures have been linked with increased cancer death rates.

Interestingly, the concentrations of asbestos in schools exceeds the levels measured downwind from asbestos spray sites, a practice recently banned by the EPA. Indeed, in its documentation supporting the ban on sprayed asbestos material containing more than 1% asbestos EPA has publicly admitted the serious health hazards posed by the use of asbestos containing materials in schools. Part of the reason for the ban was EPA's realization that such materials could pose a serious health threat from deterioration after prolonged use. The discussion accompanying the March, 1977 proposal to ban decorative uses of sprayed asbestos-containing material stated this clearly:

> The use of such spray-on materials is considered a major source of asbestos emissions because: .....
> (3) the spray-on materials may deteriorate with time and thereby contaminate the ventilation air when they fall off points of application. 3/

While exposure to asbestos poses a serious health hazard for the general population, the cancer risk faced by children exposed to asbestos is even greater. This is a function of several independent factors.

Children are more likely than adults to survive sufficiently long for the carcinogenic effects of asbestos to be manifested. The lagtime associated with the induction of mesothelioma is typically between 35 and 50 years. The lagtime for cancer is between 20 and 30 years.

Induced neoplasms in school-age children exposed to asbestos from the decay of ceiling materials can be expected to manifest itself when these individuals reach middle age.

In addition, many school children smoke or will smoke cigarettes. Nearly eight million teenagers smoke cigarettes. Twenty-seven percent of teenaged girls smoke. Forty percent of these girls smoke more than one pack a day. Thirty percent of teenaged boys smoke. As noted earlier, Selikoff and co-workers have reported that workers who smoke and who are occupationally exposed to asbestos have 92 times the risk of dying of lung cancer than do workers who did not smoke and have not been exposed to asbestos. Asbestos workers who smoked had 8 times the lung cancer risk of other smokers.

In addition to these factors, children, because of physiological characteristics and activity levels, are at higher risk than adults to the hazards of airborne carcinogens such as asbestos. Children have a higher rate of air exchange and metabolism than adults and consequently exchange a relatively greater volume of air. Thus, per unit body weight, children breathe more air than adults. Under comparable conditions children have been reported to inhale two to three times as much of a pollutant as older people.[34/]

Added to this normal difference in air exchange rates is the fact that children are more active than adults. As the level of activity rises, so does the rate of air exchange in the lungs--roughly in an exponential manner. Therefore, children in classrooms where

ceiling damage has lead to contamination with asbestos dust, are highly likely to inhale significant levels of contaminated air while playing. Moreover, such physical activity in children is often associated with mouth breathing and consequently with a loss of the body's normal nasal filtering capacity. Further, because children are shorter than adults, they are more likely to come in contact with the asbestos dust that gets stirred up from the floor. Studies on various pollutants indicate a distribution in pollutant concentration as a function of distance from the ground. In one study, lead concentrations were found twice as high 1.5 meters from the floor as 20 meters.[34/]

E. Schools Throughout America Contain Sprayed Asbestos Material

The health hazard posed by the use of asbestos-containing materials in schools affects students and other school personnel throughout the United States.

Detailed information indicating the nationwide scope of this problem comes from an EPA study in early October, 1978.[35] EPA Regional Toxic Substance Coordinators contacted all 50 states to determine the extent of the problem and the state's reactions. Although only a very few states had systematically surveyed their schools to identify those containing asbestos, the results obtained are frightening in their scope.

Nearly a thousand of the approximately 6,000 schools inspected have been identified as containing asbestos. Nearly half the public schools inspected in Indiana (260 out of 542) contain asbestos, and over 1,700 Indiana schools have yet to be inspected. In New Jersey, over 10% of the schools contain asbestos (265 out of 2,444). In many of those schools the asbestos material is visibly damaged. Massachusetts reported 75 of its schools as containing asbestos in a form that could present a risk. Of those 75, more than 20 were so dangerous as to be classified in need of immediate action. In Kentucky, over 75% (37 of 48) of the schools sampled contained asbestos. Table 4 summarizes the data available for all 50 states.

It is difficult to generalize from these numbers to a nationwide estimate of schools containing asbestos. Schools in different parts of the county were built at different times and can be expected to have differed in their use of asbestos material. In addition, the EPA study does not indicate the criteria that led to a school being

Table 4

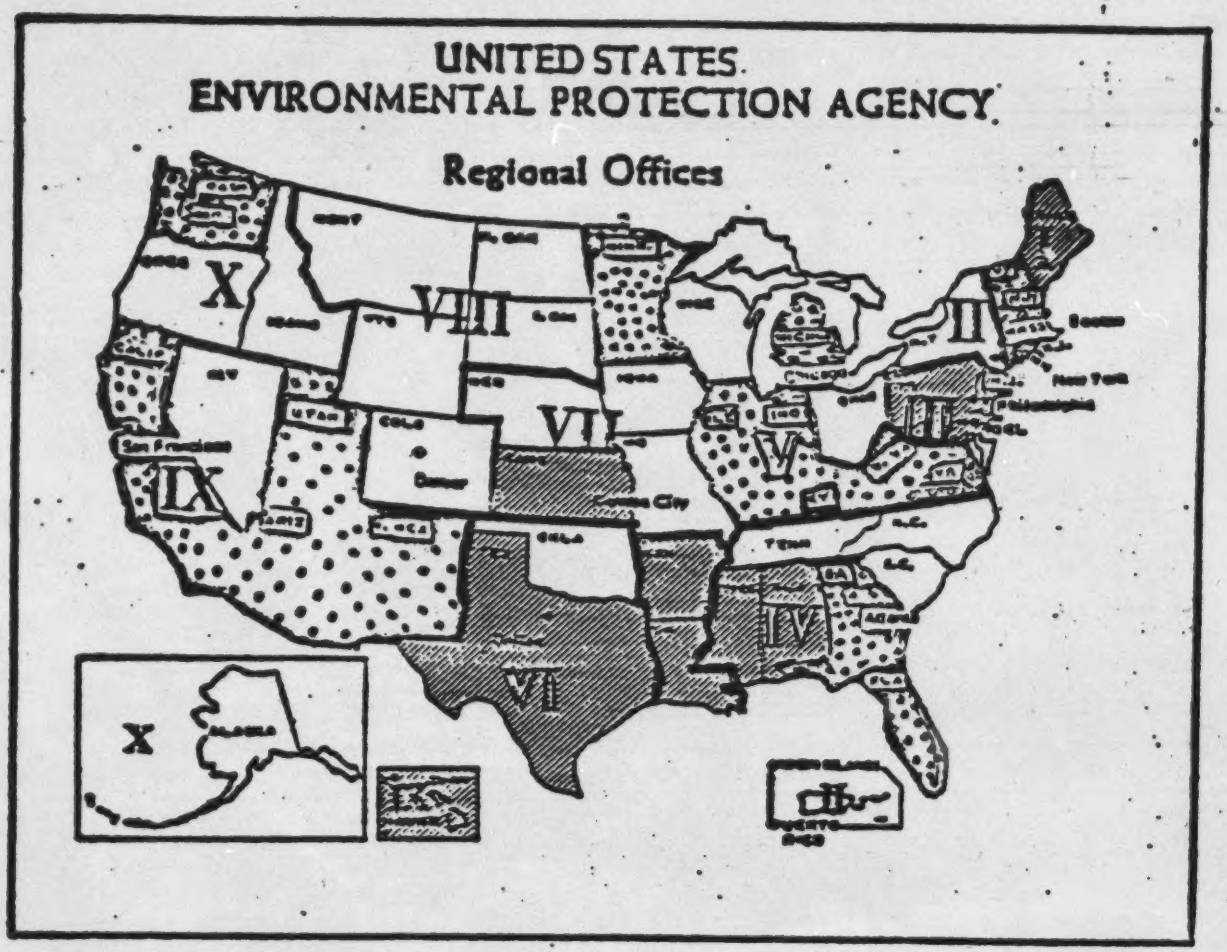
Schools with Asbestos

State	Number of Schools	Students	Number Schools Inspected	Number positive for presence of Asbestos in Material or Air Samples
Alabama	1,370	751,669	1	1
Alaska	349	88,552	0	0
Arizona	806	490,814	some	?
Arkansas	1,183	451,960	0	0
California	7,050	4,613,012	many	50-100
Colorado	1,264	559,405	0	0
Connecticut	1,116	640,255	45	45
Delaware	200	125,900	few	?
District of Columbia	193	128,095	8	8
Florida	1,985	1,551,538	?	?
Georgia	1,770	1,068,854	few	0
Hawaii	225	178,367	0	0
Idaho	553	182,086	0	0
Illinois	4,512	2,136,329	?	?
Indiana	2,262	1,116,802	542	260
Iowa	1,890	611,059	0	0
Kansas	1,626	442,537	40	0
Kentucky	1,411	682,066	48	37
Louisiana	1,505	809,674	?	?
Maine	815	241,256	3	1
Maryland	1,352	870,974	1	0
Massachusetts	2,425	1,189,874	1,400	75
Michigan	3,894	1,957,774	200	17
Minnesota	1,144	831,226	?	?
Mississippi	1,063	505,342	1	1
Missouri	2,282	950,857	8	8
Montana	799	167,587	0	0
Nebraska	1,865	313,657	0	0
Nevada	260	135,821	0	0
New Hampshire	451	169,022	?	?
New Jersey	2,444	1,429,517	2,000+	265
New Mexico	635	274,473	many	some
New York	4,388	3,381,925	1,050	187
North Carolina	2,023	1,165,964	0	0
North Dakota	795	132,787	0	0
Ohio	4,199	2,260,698	1	?
Oklahoma	1,864	588,540	some	?
Oregon	1,286	456,512	0	0
Pennsylvania	4,036	2,193,022	20	some
Rhode Island	400	176,008	400	19
South Carolina	1,103	601,513	0	0
South Dakota	830	150,045	0	0
Tennessee	1,755	880,145	0	0
Texas	5,291	2,750,161	some	0
Utah	553	308,879	4	some
Vermont	403	104,609	100	?
Virginia	1,781	1,094,136	31+	0
Washington	1,727	780,030	30-50	some
West Virginia	1,274	387,881	some	?
Wisconsin	2,274	961,195	0	0
Wyoming	380	87,586	0	0
TOTAL	87,061		6,333+	973+

inspected, whether it was a random sample or pegged to some suggestion that asbestos was present. However, some attempt to quantify the extent of the problem is illuminating. If the actual percentage is the same as documented in the EPA survey, the number of schools containing asbestos would be about 13,500. If the percentage of schools nationwide containing asbestos is one-quarter the 16 percent rate revealed in the EPA study, i.e. 4%, then approximately 3,500 of the nation's 87,000 schools contain asbestos. If one applies the same percentages to the number of children attending public schools, one gets a very crude approximation of the number of children at risk, if the asbestos in those schools is releasing into the air. Using the 4% figure, about 1.7 million children may currently be at risk. Using the 16% figure, 6.8 million children may currently be at risk. (These figures represent only this generation of school children, not those already graduated from asbestos-containing schools. In addition, if the problem continues unabated, each succeeding generation of school children will also be at risk). The actual population at risk also includes teachers and maintenance and custodial staff. There are approximately 2,178,000 teachers working in the public schools.[36/]

The EPA report also provides information on the number of states that have embarked on a program to identify and correct problems caused by asbestos-containing material. Figure 1 gives a pictoral representation of this information. Nineteen states have no program at all. These are Alaska, Colorado, Idaho, Illinois, Iowa, Montana, Missouri, Nebraska, Nevada, New York, North Carolina, North Dakota, Ohio, Oregon, South Carolina, South Dakota, Tennessee, Wisconsin and Wyoming. There are about 15 million public school students in these states. Ten states have only a sporadic program, which entails only

STATE INVOLVEMENT IN PROGRAMS TO CONTROL ASBESTOS-SPRAYED MATERIAL IN SCHOOLS[35]



States with very active programs

States with more moderate programs

States without programs *

* Since the time of publication of this map, several states without programs have begun fragmentary efforts.

rare inspections of schools for asbestos. These are Alabama, Arkansas, Kansas, Louisiana, Maryland, Mississippi, Hawaii, Maine, Pennsylvania and Texas. There are about 9 million public school students in these states. Twenty-one states have more active programs. But even these programs have not notified all local school board authorities as to the potential risk and have not inspected a large number of schools for asbestos.

F. To Eliminate the Hazard, the Asbestos Material Can Be Sealed or Removed

There are two long-term approaches to alleviating the health hazard caused by asbestos-containing material.[25] The first is complete removal of the material. The second is use of a sealant or enclosure to prevent release of fibers into the air.

Enclosure of a sprayed asbestos surface simply means placing an impermeable barrier between the surface and the occupied area. Contact with the asbestos surface is thus avoided and any asbestos falling out by erosion cannot reach the occupied area. Because the asbestos-containing material has not been removed, it must still be dealt with when the building is renovated or demolished. In addition, any break in the barrier will release the asbestos fibers that had accumulated on its upper surface. The sealing of asbestos surfaces involves coating the surface with a material that will form an effective seal against fall-out of fibers from erosion, and will not allow the release of fibers after impact. Again, the problem of dealing with the asbestos material during renovation or demolition remains. The effectiveness of a sealant is also limited by the quality of the bond between the asbestos material and the underlying structural element. A sealant cannot prevent emission of fibers if the asbestos shears off the underlying structural element. Finally, the sealant can be expected to erode with time, at which time asbestos will again enter the environment. EPA has contracted with Battelle Columbus to assess a variety of available products for use as a sealant. This report should be available in the near future.

The choice of control measures is dependent on a number of factors including the characteristics of the asbestos material, how

well it is bound to the underlying structural elements, accessibility of the material to impact, and available resources. According to the study of New Jersey schools,[2] the major cost difference between removing and sealing the asbestos material is the cost of replacing the removed material. Labor costs are similar because both sealing and removal must be done under strict work conditions in order to protect worker health and prevent air contamination that could arise from the contact with the material that is a necessary part of any removal or sealing procedure.

Detailed cost figures for removing or sealing asbestos-containing materials are unavailable. Costs for individual corrective actions are available but it is difficult to extrapolate from the particular situations to a more general cost estimate. EPA has reported a $\$13.64/m^2$ cost for removal of a ceiling in one documented case.[6] The New Jersey study estimated a $1-2/sq. ft. cost for sealing and $2-5/sq. ft. cost for removal and replacement of an asbestos-containing ceiling.[2]

V. LEGAL BASIS FOR RULEMAKING UNDER §6 OF THE TOXIC SUBSTANCES CONTROL ACT

A. The Unreasonable Risk to Health Posed by Asbestos Emissions from Spray-On Material Cannot Be Prevented to a Sufficient Extent by Action Taken Under a Federal Law Not Administered by the Administrator.

In the foregoing section, petitioner has demonstrated that asbestos emissions from spray-on coatings in public school buildings may present an unreasonable risk of injury to the health of persons using such buildings. In this section, petitioner will demonstrate that §6 of the Toxic Substances Control Act gives the Administrator the authority to regulate such emissions and that use of that section rather than some other federal law is appropriate.

Once the Administrator has concluded that there is a reasonable basis for regulating the use of a chemical substance or mixture on the grounds that it presents an unreasonable risk of injury to health, he must first determine whether the risk of injury can be prevented or reduced to a sufficient extent by action under another federal law not administered by the Administrator. See §9(a), 15 U.S.C. §2608(a). If the Administrator determines that such risk can be prevented or reduced under another federal statute not administered by him, he is required to submit to the agency which administers such other law a report describing the risk and a summary of the evidence supporting his determination of unreasonable risk.

Petitioner has carefully reviewed other federal laws administered by agencies other than EPA which might be invoked to control asbestos emissions from spray-on materials. Petitioner has concluded that other federal

laws not administered by the Administrator could not prevent or reduce to a sufficient extent the risk posed by these asbestos emissions.

There are three other federal statutes which might be utilized to control asbestos emissions from spray-on materials--the Occupational Safety and Health Act, the Federal Hazardous Substances Act, and the Consumer Product Safety Act.

The Occupational Safety and Health Act, 29 U.S.C. §651 et seq., is not applicable for several reasons. First, it does not apply to "the United States or any state or political subdivision of the state." 29 U.S.C. §652(5). Since this petition deals with asbestos emissions in public schools, the Occupational Safety and Health Act would not be able to reach this problem. Second, even if it were construed to apply to public schools, the Occupational Safety and Health Act would protect only school teachers and other employees of the school system. Even if a standard were developed to protect these persons, it is quite possible that such a standard would be inadequate to protect school children who can be expected to live longer than their teachers and therefore have a greater chance of contracting lung cancer or mesothelioma even at very low levels of exposure. In short, the Occupational Safety and Health Act is apparently not applicable to public buildings and limits standards to those needed to protect workers. Its use therefore is not appropriate here.

The Federal Hazardous Substances Act, 15 U.S.C. §1261 et seq., is another federal law which might be used to control asbestos emissions from spray-on material. Section 2(f)(1)(A) of the Federal

Hazardous Substances Act does cover substances which are found to be toxic, a definition which presumably takes in substances such as asbestos. However, assuming spray-on materials containing asbestos were classified as a hazardous substance, the question remains whether asbestos emissions from these materials could be regulated under §2(q)(1)(A) or 2(q)(1)(B) of the Act. Section 2(q)(1)(A) applies to hazardous substances intended for use by children. Clearly, spray-on materials containing asbestos do not fall into this category. Section 2(q)(1)(B) of the Federal Hazardous Substances Act applies to hazardous substances intended for "household use." It would be difficult to argue that asbestos emissions from spray-on materials used in public schools constituted hazardous substances intended for "household use."[37/]

The third and final statute which might be used to control asbestos emissions from spray-on materials and which is not administered by EPA is the Consumer Product Safety Act, 15 U.S.C. §2051 et seq. Unlike the Federal Hazardous Substances Act, the Consumer Product Safety Act is applicable to products used in a "household or residence, a school, in recreation, or otherwise. . . ." 15 U.S.C. §2052(a)(1). However, unlike the Federal Hazardous Substances Act, a "consumer product safety standard shall be applicable only to consumer products manufactured after the effective date [of a rule promulgated pursuant to §7 or 8]." 15 U.S.C. §2058(d)(1). Clearly, a rule under §7 or 8 of the Consumer Product Safety Act would fail to reach the problem presented in this petition--at most such a rule could

only apply to asbestos-containing spray-on materials which were manufactured after the effective date of such rule.[38/]

From the foregoing, it should be reasonably clear that the risk presented by asbestos emissions from spray-on materials in public schools could not be prevented to a sufficient extent by action taken under other federal laws not administered by the Administrator of EPA. Therefore, §9(a) presents no barrier to the use of §6.

B. It May Not Be in the Public Interest To Attempt To Use Other Laws Administered by the Administrator To Control Asbestos Emissions from Spray-On Materials in Public Schools.

Section 9(b) of the Toxic Substances Control Act, 15 U.S.C. §2608(b), requires the Administrator to "coordinate actions taken under this Act with actions taken under other Federal laws administered in whole or in part by the Administrator." In addition it states, "If the Administrator determines that a risk to health or the environment associated with a chemical substance or mixture could be eliminated or reduced to a sufficient extent by actions taken under the authorities contained in such other Federal laws, the Administrator shall use such authorities to protect against such risk unless the Administrator determines, in the Administrator's discretion, that it is in the public interest to protect against such risks by actions taken under this Act." Section 6(c) elaborates further on the factors to be considered by the Administrator in making such a determination:

> If the Administrator determines that a risk of injury to health or the environment could be eliminated or reduced to a sufficient extent by actions taken under another Federal law (or laws) administered in whole or in part by the Administrator, the Administrator may not promulgate a rule under subsection (a) to protect against such risk of injury unless the Administrator finds, in the Administrator's discretion, that it is in the public interest to protect against such risk under this Act. In making such a finding the Administrator shall consider (i) all relevant aspects of the risk, as determined by the Administrator in the Administrator's discretion, (ii) a comparison of the estimated costs of complying with actions taken under this Act and under such law (or laws), and (iii) the relative efficiency of actions under this Act and under such law (or laws) to protect against such risk of injury.

15 U.S.C. §2605(c)(1).

The only other federal law administered by the Administrator which conceivably could be used to control asbestos emissions from spray-on materials is the Clean Air Act. EPA has promulgated regulations governing the demolition and renovation of buildings, including public school buildings, which contain such spray-on materials. 43 Fed. Reg. 26372 (June 19, 1978). Among other things, these regulations prohibit the spraying of buildings, structures, structural members, pipes, and conduits with materials containing more than one percent asbestos on a dry weight basis. The regulations, however, only cover emissions of asbestos from spray materials which occur as a result of renovation or demolition of buildings in which these materials have been used. Emissions which result from gradual deterioration of these coatings are not covered by the regulations.[39/]

Moreover, although it is never specifically stated, the preamble to these regulations suggests that the legal justification for the regulations is to prevent contamination of either the outside ambient air with asbestos fiber or outside ambient air which enters a building's ventilation system.[40/] This

suggests that the Agency is not certain whether it has authority under the Clean Air Act to regulate so-called "indoor air pollution." Although petitioner does not necessarily accept this interpretation of the law, it is an argument which could be advanced and which could preclude use of §112 of the Clean Air Act to prevent or reduce to a sufficient extent the risk posed by these asbestos emissions.[41/]

Even if the Clean Air Act is construed to enable the Administrator to regulate purely "indoor air pollution," petitioner submits that it is still in the public interest to regulate these emissions under §6 of the Toxic Substances Control Act. The following reasons would support such a finding.

First, unlike the Clean Air Act, the Toxic Substances Control Act permits the Administrator to make new requirements effective upon proposal. Under §112 of the Clean Air Act, the Administrator has a full year in which to propose and promulgate regulations once a pollutant is listed. Moreover, once a regulation is promulgated it cannot apply to existing sources of the hazardous air pollutant until 90 days have passed. As pointed out in the preceding section, a number of the public school buildings addressed in this petition contain spray-on materials which are already badly deteriorated and need immediate attention. Petitioner submits that it is in the public interest to take corrective action in those situations as quickly as possible. The Toxic Substances Control Act would permit this; the Clean Air Act would not.

The second reason it would be in the public interest to use §6 of the Toxic Substances Control Act and not the Clean Air Act to address this problem is that §6(a)(7) of the Toxic Substances

Control Act permits the Administrator to shift the costs of removing the hazardous chemical substance or mixture to the manufacturers of such substance or mixture, rather than imposing the costs on the consumer or user of the substance or mixture. There is no comparable provision in the Clean Air Act. Indeed, under the Clean Air Act EPA would presumably be forced to place the entire burden of correcting the problem on the public school systems themselves. Petitioner, as will be explained below, does not believe that the school systems should bear the entire burden for correcting the problem. Indeed, we submit that the manufacturers and processors of the fiber which went into such materials should bear the primary financial responsibility for correcting the health hazards posed by extensive use in public school buildings of such spray materials.

Finally, it can be argued that the Administrator has considerably more flexibility under §6 of the Toxic Substances Control Act to address the problem than he would have under §112 of the Clean Air Act. Section 112 generally requires the Administrator to set an emission standard, a standard which must provide "an ample margin of safety" for protection of public health. Although the Administrator has recently been given the authority to require design standards where emission standards are not feasible, it is still questionable whether the Administrator would have the authority to either require the use of sealants or to order the removal of the spray-on materials in cases where sealants would not be effective. Arguably, the greater flexibility afforded the Administrator by §§6(a)(5) and 6(a)(7) of the Toxic Substances Control Act would reduce these problems and thus serve the public interest.

In short, even if the Administrator determines that he has the authority to regulate "indoor air pollutants" under the Clean Air Act, it is still in the public interest to utilize §6 of the Toxic Substances Control Act for the reasons outlined above. Therefore, we now turn our attention to §6.

C. Section 6 Gives the Administrator the Authority To Regulate Asbestos and Mixtures Containing Asbestos Used for Spray-On Materials.

Section 6 of the Toxic Substances Control Act gives the Administrator of EPA authority to regulate "the manufacture, processing, distribution in commerce, use, or disposal of a chemical substance or mixture, or . . . any combination of such activities, [that] presents or will present an unreasonable risk of injury to health or the environment. . . ." 15 U.S.C. §2605(a). Asbestos falls within the definition of "chemical substance" since it is an "inorganic substance of a particular molecular identity." 15 U.S.C. §2602(2)(A). Furthermore, spray-on materials containing asbestos are "mixtures" within the meaning of §6--that is "any combination of two or more chemical substances if the combination does not occur in nature and is not, in whole or in part, the result of a chemical reaction." 15 U.S.C. §2602(8). According to the Senate Report, the term "mixture" includes "articles containing chemical substances. . . ." S. Rep. No. 94-698, 1976, U.S. Code Cong. & Ad. News 4491, 4505. Therefore, under §6, asbestos can be regulated either as a chemical substance or as a component of a mixture if "there is a reasonable basis to conclude that the manufacture, processing, distribution in commerce, use or disposal (of such substance or mixture) presents or will present

an unreasonable risk of injury to health or the environment. . . ." 15 U.S.C. §2605(a). The types of evidence and degree of proof required to find unreasonable risk is discussed in the House Report. The House stated that a finding of unreasonable risk "may be based upon items such as toxicological, physiological, epidemiological, biochemical or statistical research or studies or extrapolations therefrom. The finding . . . must include adequate reasons and explanations for the Administrator's conclusion. It does not, however, require the factual certainty of a 'finding of fact' of the sort associated with adjudication." H. Rep. No. 94-1341, 94th Cong., 2d Sess. (1976) at 32.

Although the term "unreasonable risk" is not defined in the Toxic Substances Control Act itself, the courts have interpreted this term in other comparable statutes. For example, in interpreting its use in the Federal Hazardous Substances Act, the District of Columbia Circuit has defined unreasonable risk as involving "a balancing test like that to be made in tort law; the regulation may issue if the severity of the injury that may result from the product, factored by the likelihood of the injury, offsets the harm the regulation itself imposes on manufacturers and consumers." Forester v. CPSC, 559 F.2d 774 (D.C. Cir. 1977). This same test has also been applied to regulatory decisions under the Consumer Product Safety Act involving the same "unreasonable risk" standard. See Aqua Slide 'N' Dive v. CPSC, 569 F.2d 831, 839 (5th Cir. 1978).

Finally, the District of Columbia Circuit Court has used a very similar test in defining unreasonable risk under the Federal Insecticide, Fungicide and Rodenticide Act. In Environmental Defense Fund, Inc. v. EPA, 548 F.2d 998, 1005 (D.C. Cir. 1976), the court stated, "To evaluate whether use of a pesticide poses an 'unreasonable risk to man or the environment,' the Administrator engages in a cost-benefit analysis that takes 'into account the economic, social, and environmental costs and benefits of the use of any such pesticide.' 7 U.S.C. §136(bb)." Perhaps most important, the court has noted that "Reliance on general data, consideration of laboratory experiments on animals, etc. has been held a sufficient basis for an order cancelling or suspending the registration of a pesticide. Once risk is shown the responsibility to demonstrate that the benefits outweigh the risks is upon the proponents of continued registration. Conversely, the statute places a 'heavy burden' of explanation on an Administrator who decides to permit the continued use of a chemical known to produce cancer in experimental animals." EDF v. EPA, supra. See also Environmental Defense Fund, Inc. v. EPA, 510 F.2d 1292, 1302 (D.C. Cir. 1975).

Under §6(c)(1) of the Toxic Substances Control Act, the Administrator is required to consider and publish a statement describing the following factors in making his determination of whether a chemical substance or mixture presents an unreasonable risk: (1) the effects of such substance or mixture on health and the magnitude of the exposure of human beings to such substance or mixture; (2) the effects of such substance or mixture on the environment and the magnitude of the exposure of the environment to such substance or mixture; (3) the benefits of such substance or mixture for various uses and the availability of substitutes for such uses; and (4) reasonably ascertainable economic consequences of the rule, after consideration of the effect on the national economy, small business, technological innovation, the environment, and public health.

As discussed at length in the preceding section, asbestos can produce both mesothelioma and lung cancer in humans. Moreover, scientists have yet to establish a threshold for asbestos, that is a level below which no adverse health effects exist. Indeed, the evidence suggests that even very low levels of asbestos can lead to lung cancer if a sufficiently long latency period is available.

As pointed out in the preceding section, significant quantities of asbestos are being released as a result of the deterioration of ceilings coated with these spray materials. Indeed, this conclusion is supported by the Agency's Phase I report entitled, "Asbestos: Sources/Effects Review," quoted above. That report states in part:

> Asbestos was also sprayed on ceilings of many commercial buildings, schools, and apartment houses constructed during this period (1940 to 1970). Here the coating was often used for sound-deadening or decorative purposes. Such ceilings are now found to be deteriorating in many places, releasing large numbers of fibers into the air. 42/ [Emphasis added.]

In another portion of the report, asbestos emissions from such ceilings were described as "a major source of exposure to asbestos."[43/] Indeed, of the major remaining sources of exposure to asbestos evaluated in the report, ceilings coated with asbestos in schools and public buildings were listed as the number one priority for further investigation.[44/]

The second factor which aggravates the risks posed by these emissions is the fact that their release into an enclosed area such as a school building virtually guarantees their continued resuspension in the air. This has also been recognized by the Agency in its preliminary report on asbestos.

> Turbulence tends to prolong settling and may resuspend particulates already settled. . . . The durability of asbestos fibers and their characteristic slow settling in the air is seen most dramatically in homes, schools, and buildings where the fibers may become trapped and allow buildup of fiber concentrations that cause ever increasing exposures. 45/

Third, as pointed out in the preceding section, the fact that primarily children are exposed to asbestos emissions from spray-on materials in public schools substantially increases the hazards associated with such emissions since children have a sufficiently long life expectancy to make even low exposures

hazardous. Moreover, it should be pointed out that asbestos can accumulate in the lungs and that these spray materials are not the only source of asbestos to which such children can be expected to be exposed. Therefore, to the extent that exposure to multiple sources increases the risk of lung cancer, it can be said that this source of exposure aggravates the existing risk from other sources. Finally, a very large number of school children may be exposed on a continuing basis to asbestos emissions from spray-on materials. Preliminary indications are that several thousand public schools contain asbestos spray materials. Assuming that these school buildings are expected to continue in use for 20 to 30 years, this means that several million children, in addition to thousands of teachers and school employees, are exposed and therefore at risk.

The third factor which the Administrator must consider in making his determination is the "benefits of such substance for various uses and the availability of substitutes for such uses." First, much of the spray material which has been used in public schools in the last 20 years has been used for decorative purposes only. Petitioner suggests that there are many substitutes available for these decorative uses. Moreover, where the spray materials have been used for other purposes, such as soundproofing or fireproofing, petitioner submits that substitutes are also available for these uses. In short, there should be no difficulty finding substitute substances to serve any of the foregoing purposes.[46/]

The final factor which must be considered by the Administrator in making a judgment regarding unreasonable risk is "the reasonably ascertainable economic consequences of the rule, after consideration of the effect on the national economy, small business, technological innovation, the environment, and public health." As discussed in the preceding section, it is difficult for petitioner at this stage to assess the full economic consequences of the proposed rule. It is clear that where spray materials must be removed in order to eliminate the public health hazard because chemical sealants or other solutions will not be effective, the cost may be very high. Nevertheless, it is not clear at this time how much material will actually have to be removed from school buildings because of advanced deterioration or other factors. It is quite possible that a complete survey will demonstrate that much of the potential problem can be solved through the application of chemical sealants, sealant which can be applied at a cost of one to two dollars per square foot.

In short, petitioner submits that asbestos emissions from these spray-on materials do present unreasonable risk of injury under the standards presented in §6(c) of the Toxic Substances Control Act and are therefore subject to regulation under §6(a) of the Act. The fact that such regulations may have an adverse economic impact on asbestos manufacturers, and to some extent public school systems, does not overcome the need for immediate action. Indeed, a recent D.C. Circuit opinion has explicitly addressed the problem of regulating carcinogens, such as asbestos, where

the economic consequences of regulation may be large. The decision in Environmental Defense Fund, Inc. v. EPA, No. 77-1091, slip op. (D.C. Cir. Nov. 3, 1978) provides one of the best legal analyses of standards to be used in regulating carcinogens by administrative agencies. Although the case involves the regulation of PCBs under the Federal Water Pollution Control Act, which does not require an explicit balancing of costs and benefits, the court did consider the costs of the regulations in making its decision.

The court's analysis began by pointing out that

> . . . court's have traditionally recognized a special judicial interest in protecting the public health, particularly where "the matter involved is as sensitive and fright-laden as cancer." Where the harm envisaged is cancer, courts have recognized the need for action based upon lower standards of proof than otherwise applicable.

EDF v. EPA, supra, at 297-98 (footnotes omitted) (quoting EDF v. EPA (DDT), 465 F.2d 528, 538 (D.C. Cir. 1972)).

The court went on to cite a number of cases where it has upheld regulations based on evidence of carcinogenic effects. Referring to these cases, the court stated:

> These cases demonstrate the inevitable tension attending regulation of carcinogens. Frequently, such regulations have severe economic impact. Indeed, sometimes, as alleged by industry petitioners in this case, such regulations may jeopardize plants or whole industries, and the jobs depending on them. In such circumstances, the temptation to demand that the Agency furnish conclusive proof of carcinogenicity as support for the regulations is great. However, the decision to delegate authority to an agency to control suspected carcinogens is a legislative

> judgment that is not open to question in this Court. Congress' direction to EPA to protect against incompletely understood dangers could not be carried out if we were to adopt the proof requirements advocated by industry petitioners.
>
> What scientists know about the causes of cancer is how limited is their knowledge. The record in this case demonstrates that it may take decades for human exposure to carcinogens to result in cancer; in the meantime, the case for inferring a cancer danger with respect to an incompletely understood substance is vigorously disputed. If regulation were withheld until the danger was demonstrated conclusively, untold injury to public health could result. Accordingly, we find that Congress has allowed EPA to support a prohibition on the basis of strongly contested and merely suggestive proof. We conclude that the evidence in this case is at least suggestive of carcinogenicity and thus supports EPA's decision.

EDF v. EPA, supra, at 56-58 (footnotes omitted).

In short, the fact that the regulations requested by petitioner may impose significant cost does not eliminate EPA's responsibility to protect the public against the risk posed by these emissions. Furthermore, the fact that disease associated with these asbestos emissions may not appear for decades does not preclude the regulation of these emissions since "if regulation were withheld until the danger were demonstrated conclusively, untold injury to public health could result." Id. For all these reasons, petitioner suggests that the courts would uphold regulation of emissions resulting from the use of these spray-on materials as an unreasonable risk under §6 of the Toxic Substances Control Act.

D. EPA Has the Authority Under §6(a)(3), §6(a)(5), and §6(a)(7) To Control the Emission of Asbestos from Spray Materials in Public School Buildings.

The first step in controlling emissions from spray materials

containing asbestos found in public school buildings is to identify all those buildings which in fact contain such materials. Petitioner believes that responsibility for identifying such buildings should be shared between the processors and manufacturers of the asbestos fiber which went into the spray materials and the school districts themselves. Petitioner believes that the school districts should be required to go ahead and perform the necessary sampling and analysis subject to reimbursement for all or a portion of the costs by the manufacturers and processors of the fiber which went into the materials. The most desirable approach would be to establish a joint cooperative effort at the outset; however, petitioner recognizes that this may not be possible and urges EPA to require the school districts to move ahead on their own if a joint program cannot be worked out relatively quickly.

Authority to require school districts to undertake such sampling and mark the ceilings or other structural components containing asbestos is contained in §6(a)(3) of the Toxic Substances Control Act. That section provides that the Administrator may impose "a requirement that such substance or mixture or any article containing such substance or mixture be marked with or accompanied by clear and adequate warnings and instructions with respect to its use, distribution in commerce, or disposal or with respect to any combination of such activities. The form and content of such warnings and instructions shall be prescribed by the Administrator." 15 U.S.C. §2605(a)(3). All of these ceilings and structural components containing the asbestos spray materials will

ultimately have to be disposed of and marking of such materials prior to disposal is essential to eliminate the unreasonable risk of asbestos emissions which may result from such disposal activities. Moreover, as pointed out in the previous section, there is evidence that normal activity associated with the use of areas sprayed with such materials can produce relatively high emissions of asbestos. For example, the installation of track lighting systems in the Yale Architectural Building produced relatively high concentrations of asbestos. The first step in preventing such exposure is to make certain that all such materials are marked in order that adequate precautions can be taken. This is particularly true in the interim period prior to such time as the ceiling is removed altogether or permanently sealed with a chemical sealant.

Legal precedent for the application of the requirements contained in §6(a)(3) to public schools which are in possession of toxic substances is contained in the Agency's regulations issued pursuant to §6(e)(1) of the Toxic Substances Control Act requiring the marking of products and equipment containing PCBs.[47/] Although these regulations were issued pursuant to §6(e)(1) of the Toxic Substances Control Act, they rely on language which is exactly the same as that contained in §6(a)(3). Section 6(e)(1) of the Act requires "Within six months after the effective date of this Act the Administrator shall promulgate rules to--(A) prescribe methods for the disposal of polychlorinated biphenyls, and (B) require polychlorinated

biphenyls to be marked with clear and adequate warnings, and instructions with respect to their processing, distribution in commerce, use, or disposal or with respect to any combination of such activities." 15 U.S.C. §2605(e)(1). Needless to say this language precisely tracks that contained in §6(a)(3).

Significantly, the PCB marking regulation "applies to all persons who manufacture, process, distribute in commerce, use, or dispose of PCBs including local, state, and Federal governments."[48/] Section 761.20 of the regulations requires anyone possessing certain types of equipment containing PCBs to label such items by July 1, 1978.[49/] Petitioner submits that this requirement is very similar to the one proposed herein--that is, the user of a product or entity suspected to contain a toxic chemical was required to first determine whether the chemical was present and then label the product or entity if the finding was positive.

Authority to require the manufacturers and processors of asbestos used in these spray materials to participate in the investigation phase is contained in §6(a)(7). That section provides that the Administrator may impose "a requirement directing manufacturers or processors of such substance or mixture (A) to give notice of such unreasonable risk of injury to distributors in commerce of such substance or mixture and, to the extent reasonably ascertainable, to other persons in possession of such substance or mixture or exposed to such substance or mixture. . . ." 15 U.S.C. §2605(a)(7). Read together,

these two provisions clearly give EPA the authority to require school districts in possession of such spray materials and manufacturers and processors of the asbestos which went into them to participate in a program designed to determine which school buildings contain asbestos spray materials. Such a program would involve taking samples from materials which are suspected of containing asbestos and then analyzing those samples for asbestos in an accredited laboratory. To the extent that such survey work has already been performed under previous programs, the Administrator would be empowered to exempt certain states or portions of states from this requirement if he is satisfied that such data was adequate to determine the extent of the hazard.

Once the school buildings containing such materials have been identified and marked, the next step is to either permanently seal or remove altogether the spray material. Authority to require manufacturers and processors of the asbestos which went into these spray materials to remove them or chemically seal them is contained in §6(a)(7)(C). That section gives the Administrator the authority to impose "a requirement directing manufacturers or processors of such substance or mixture . . . (C) to replace or repurchase such substance or mixture as elected by the person to which the requirement is directed." 15 U.S.C. §2605(a)(7)(C). Pursuant to this section, petitioner requests the Administrator to require manufacturers or processors of such fiber to replace or repurchase, but in any event to remove, such spray coatings

from those buildings which contain spray materials which have deteriorated beyond the point where chemical sealants could be expected to be effective. Where sealants would be effective, the manufacturers and processors would be required under §6(a)(5) and §6(a)(7) to apply the sealants under the provision that requires the Administrator to impose the least burdensome requirements to correct the problem whenever possible.[50/] The determination of whether physical removal pursuant to either repurchase or replacement would be required would be left up to the Administrator or his designee.

Needless to say, tracing particular shipments of asbestos fibers to ultimate use in spray materials in individual buildings will be an extremely difficult if not impossible task. Petitioner submits that Congress never intended that EPA be required to do the impossible to carry out the intent of the statute. Indeed, petitioner submits that joint liability principles from tort law can be applied here to resolve the problem of apportioning the cost of removal among various manufacturers of fiber. Specifically, petitioner suggests that each manufacturer of asbestos fiber be required to pay a percentage of the total removal cost

based on the approximate share of the fiber market which such company held during the period of 1950 to 1965. Petitioner submits that this approach is justified by tort cases, such as Hall v. DuPont, 245 F. Supp. 353 (E.D.N.Y. 1972), where the court stated that "many diverse cases impose joint liability on groups whose actions create unreasonable hazards of risk of harm, even though only one member of the group may have been the 'direct' or physical cause of the injury." Id. at 372. The court held in that case that joint liability could lie if "plaintiffs can submit evidence that defendant, acting independently, adhered to an industry-wide standard or custom with regard [to the product at issue, in that instance blasting caps]." Id. at 374. To the extent that every asbestos manufacturer sold raw fiber, some of which ended up in the spray materials, petitioner suggests that the courts would be willing to apportion liability based on a marketshare evaluation, absent other evidence which would defeat the presumption that relative marketshare is a good indicator of relative liability.

Finally, petitioner submits that whether a manufacturer elected replacement or repurchase under §6(a)(7), it would still be required to physically remove the product in a safe manner from affected school buildings. Repurchase, unless specifically limited to a mere refund, clearly contemplates the physical return of the goods. In this case, obviously the possessor of the good, that is the school system, is in no position to return the good itself. Removal of spray materials containing asbestos is a hazardous operation and can only

be undertaken safely by professionals. Furthermore, return of the goods is essential to eliminate the hazard. Under §6(a) the Administrator has broad authority and may apply one or more of the listed requirements "to the extent necessary to protect adequately against such risk." In this case, merely permitting manufacturers to refund the price of the spray materials or the asbestos fiber in them would clearly not be adequate to protect against the risk imposed by such materials. In this case, removal of the material and its physical return and ultimate disposal is essential to protect the possessor of the material.

In short, petitioner submits that the Administrator does have the authority under §6(a)(7) of the Toxic Substances Control Act to require the removal of spray materials which have already begun to deteriorate and cannot be effectively sealed.

E. Section 6(d)(2) of the Toxic Substances Control Act Gives the Administrator the Authority to Make Rules Effective upon Publication.

Under §6(d)(2)(A) the Administrator may "declare a proposed rule under subsection (a) to be effective upon its publication in the Federal Register and until the effective date of final action taken, in accordance with subparagraph (B), respecting such rule if (i) the Administrator determines that--(I) the manufacturer, processing, distribution in commerce, use, or disposal of the chemical substance or mixture subject to such proposed rule or combination of such activities is likely to result in the unreasonable risk of serious or widespread injury to health or the environment before such effective date; and (II) making

such proposed rule so effective is so necessary to protect the public interest. . . ." 15 U.S.C. §2605(d)(2)(A).

Petitioner submits that asbestos emissions from seriously deteriorated spray materials could very well result in an unreasonable risk of injury to health during the period needed to promulgate regulations. Several studies suggest that even brief periods of exposure may have been responsible for the development of mesothelioma or lung cancer affected individuals many years later.[51/] Badly deteriorated ceilings present the possibility of episodic exposures to very high levels of asbestos. Petitioner submits that the possibility of such episodic exposure to very high levels during the period between publication and promulgation of rules is sufficient reason to require that the proposed rules, at least as they apply to buildings with visible deterioration, be effective upon publication in the Federal Register. At a minimum, school districts either alone or in conjunction with manufacturers and processors should be required to begin the requested nationwide survey of school buildings immediately upon publication of the proposed rules.

VI. CONCLUSION

Asbestos emissions from ceilings and other structural components of school buildings which have been coated with spray materials containing this mineral pose an unreasonable risk of injury to school children and other persons using such buildings. Immediate action to identify the sources of such emissions and to eliminate them either through use of chemical sealants or physical removal of the spray material is essential. Section 6 of the Toxic Substances Control Act provides EPA with the necessary legal authority to do so.

Although the Administrator has a maximum of 90 days in which to make a decision on this petition, petitioner requests that a decision be made by no later than March 1, 1979 due to the serious nature of the problem. Petitioner also requests that the Administrator and the Assistant Administrator for Toxic Substances meet with representatives of petitioner as soon as possible to discuss this petition.

Respectfully submitted,

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FOOTNOTES

1. 40 FR 47652

2. Nicholson, W.J. (1978). Control of sprayed asbestos surfaces in school buildings: a feasibility study. Report to the National Institute of Environmental Health Sciences.

3. 42 FR 12122

4. 38 FR 8820

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7. The information in this section is summarized from references 2 and 5.

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37. The Acting General Counsel of the Consumer Product Safety Commission, in a letter dated August 23, 1978 to Mr. Richard Denney, Associate General Counsel of the Environmental Protection Agency, has taken essentially the same position. "Under the FHSA, the Commission lacks jurisdiction to address risks of injury for substances not intended for use in households. Therefore, to the extent the asbestos-containing product in question is used in buildings other than homes, action under the FHSA would not prevent or reduce to a sufficient extent the risk of injury." Letter, supra, at 4.

38. The Acting General Counsel of the Consumer Product Safety Commission, in the same letter quoted above takes essentially the same legal position:

> The effect of such a rule (pursuant to §8) when promulgated is to prevent the manufacture for sale, offering for sale or distribution of a hazardous product. Section 8 rules may be written to have retrospective effect as to products in the chain of distrubution, but generally cannot reach products which have, as of the effective date of the rule, been sold or distributed to consumers.

Letter, supra, at 3 (emphasis added).

39. This fact has been acknowledged by EPA in a draft report entitled, "Asbestos: Sources/Effects Review," prepared by the Assessment Division of the Office of Toxic Substances, dated December 8, 1978.

40. See 42 Fed. Reg. 12122 (Mar. 2, 1977) and 43 Fed. Reg. 26372 (June 19, 1978).

41. It is petitioner's understanding that the State of New Jersey has filed a petition pursuant to the Clean Air Act requesting the regulation of asbestos emissions from spray-on materials. Petitioner urges the agency to give this New Jersey petition serious consideration. The use of §112 requires a difficult legal judgment, and petitioner has urged use of §6 of TOSCA primarily because it believes legal uncertainties may delay the imposition of requirements under the Clean Air Act. Nevertheless, the potential for using the Clean Air Act should continue to be explored.

42. EPA, "Asbestos: Sources/Effects Review," supra note 39 (emphasis added).

43. Id. at 14.

44. Id. at ii.

45. Id. at 10.

46. EPA itself has recognized the availability of substitutes for all these uses. See 43 Fed. Reg. 26372.

47. See 43 Fed. Reg. 7150 (Feb. 17, 1978).

48. Id. (emphasis added).

49. Id. at 7159.

50. See §6(a), 15 U.S.C. §2605(a).

51. See IARC Monographs, supra note 9.